

THE AURA SURVEILLANCE SYSTEM AND AMS

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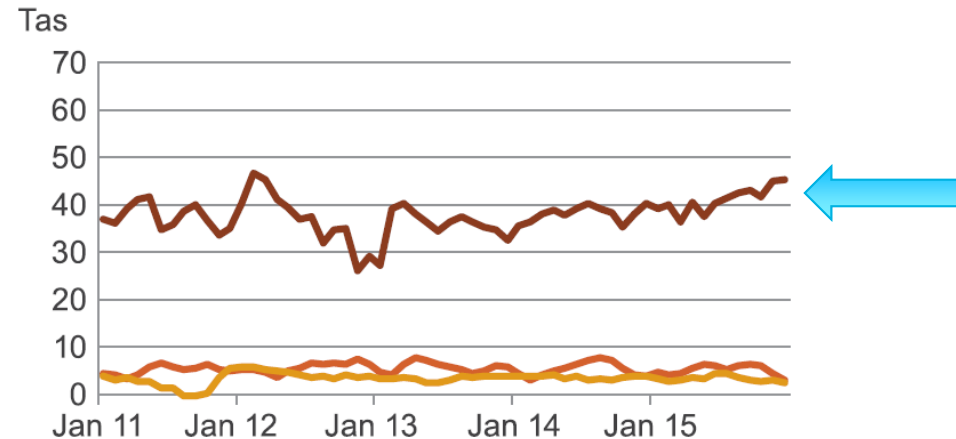
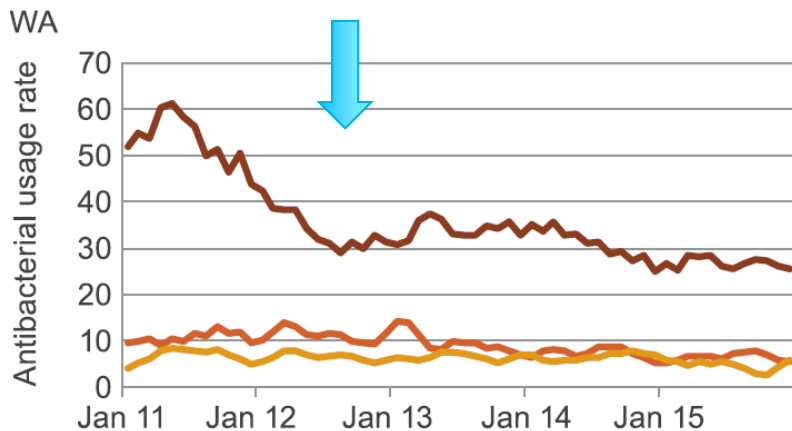
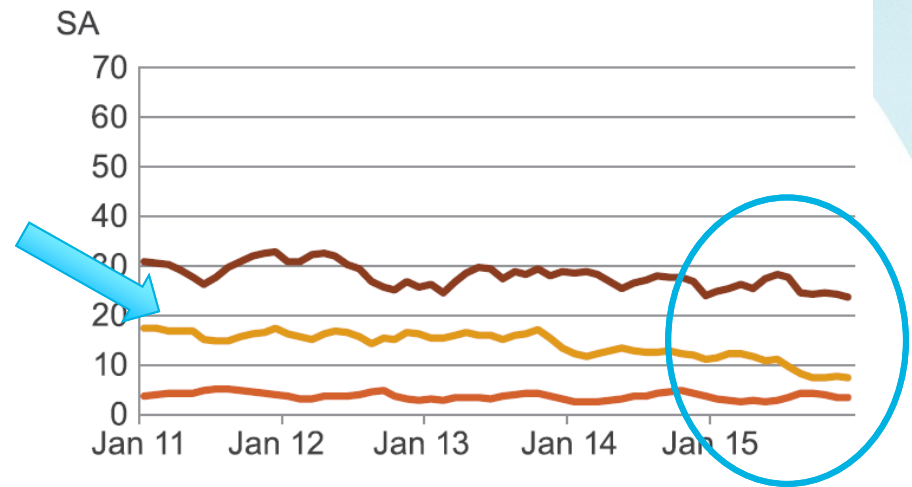
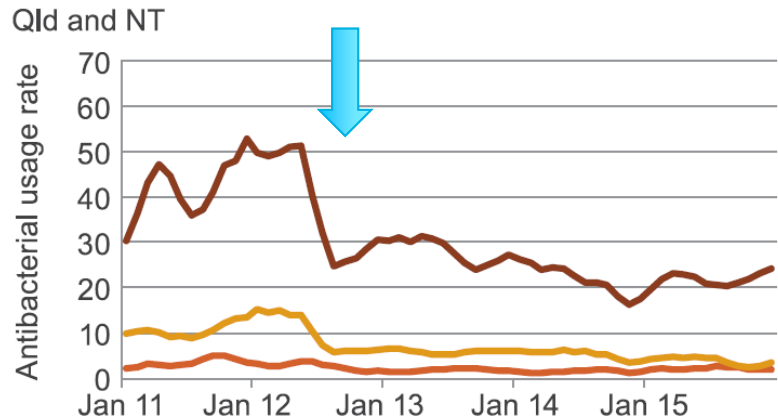
AUSTRALIAN COMMISSION
ON SAFETY AND QUALITY IN HEALTH CARE



Antimicrobial stewardship

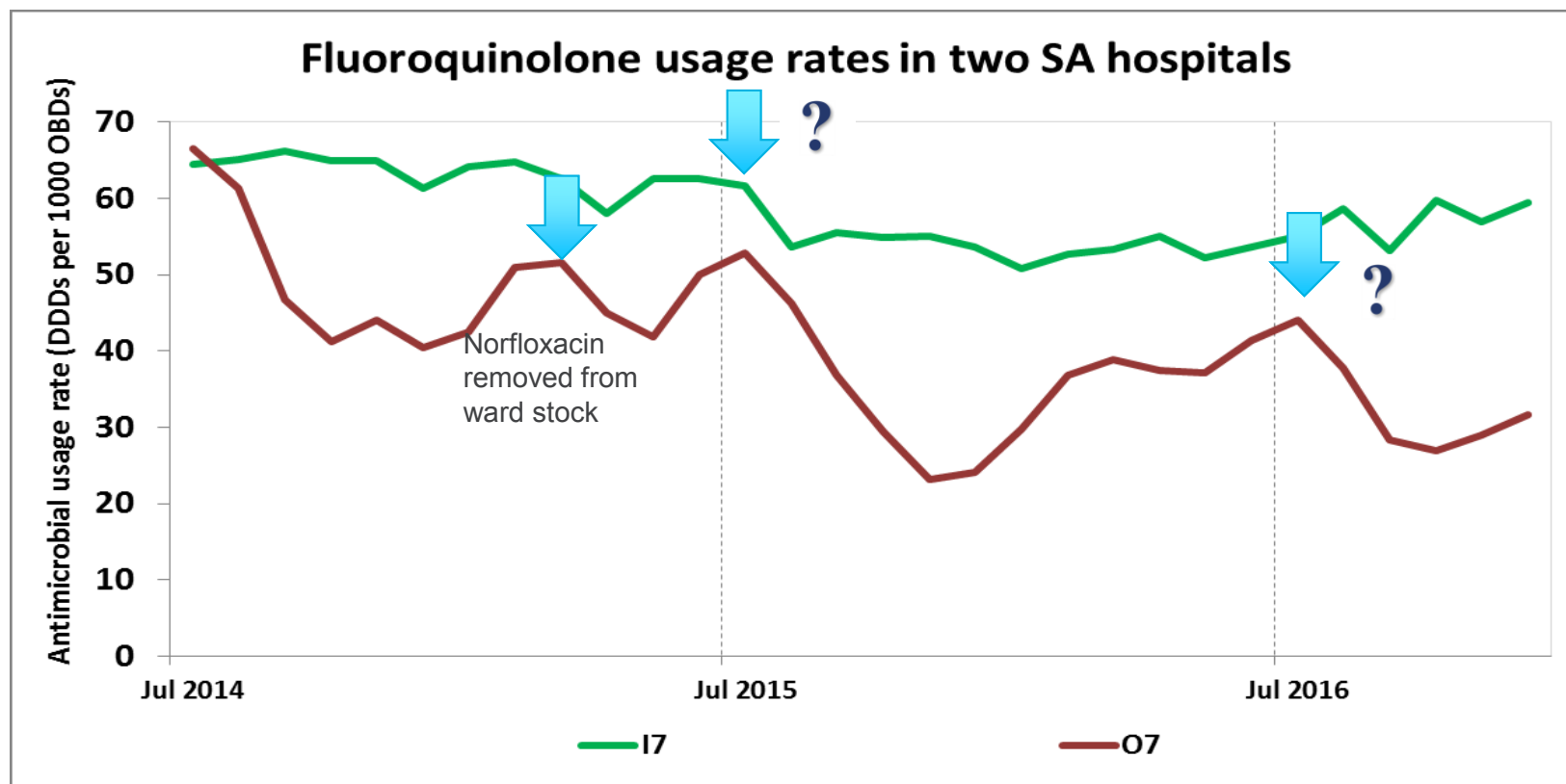
- Multidisciplinary strategy with institutional/executive support aimed at:
 - Optimising clinical outcomes in the management of infections
 - Promoting appropriate antimicrobial use
 - Minimising the adverse consequences of antimicrobial use including antibiotic resistance
- Applicable to all sectors in which antimicrobials are prescribed
 - Hospitals, GP offices, aged care and in agriculture and livestock
- Supported by:
 - evidence-based guidelines, knowledge of resistance patterns in microorganisms, antibiotic usage data and trends
 - audit and analysis to assess adherence to guidelines, appropriate prescribing and effectiveness of implementation strategies
- AURA provides systematic coordinated and centralised national reporting on antibiotic use, resistance and appropriateness to support AMS.
 - NAUSP and NAPS of particular importance in AMS

NAUSP: Fluoroquinolone usage rates (DDD/1,000 OBD)



— Ciprofloxacin — Moxifloxacin — Norfloxacin

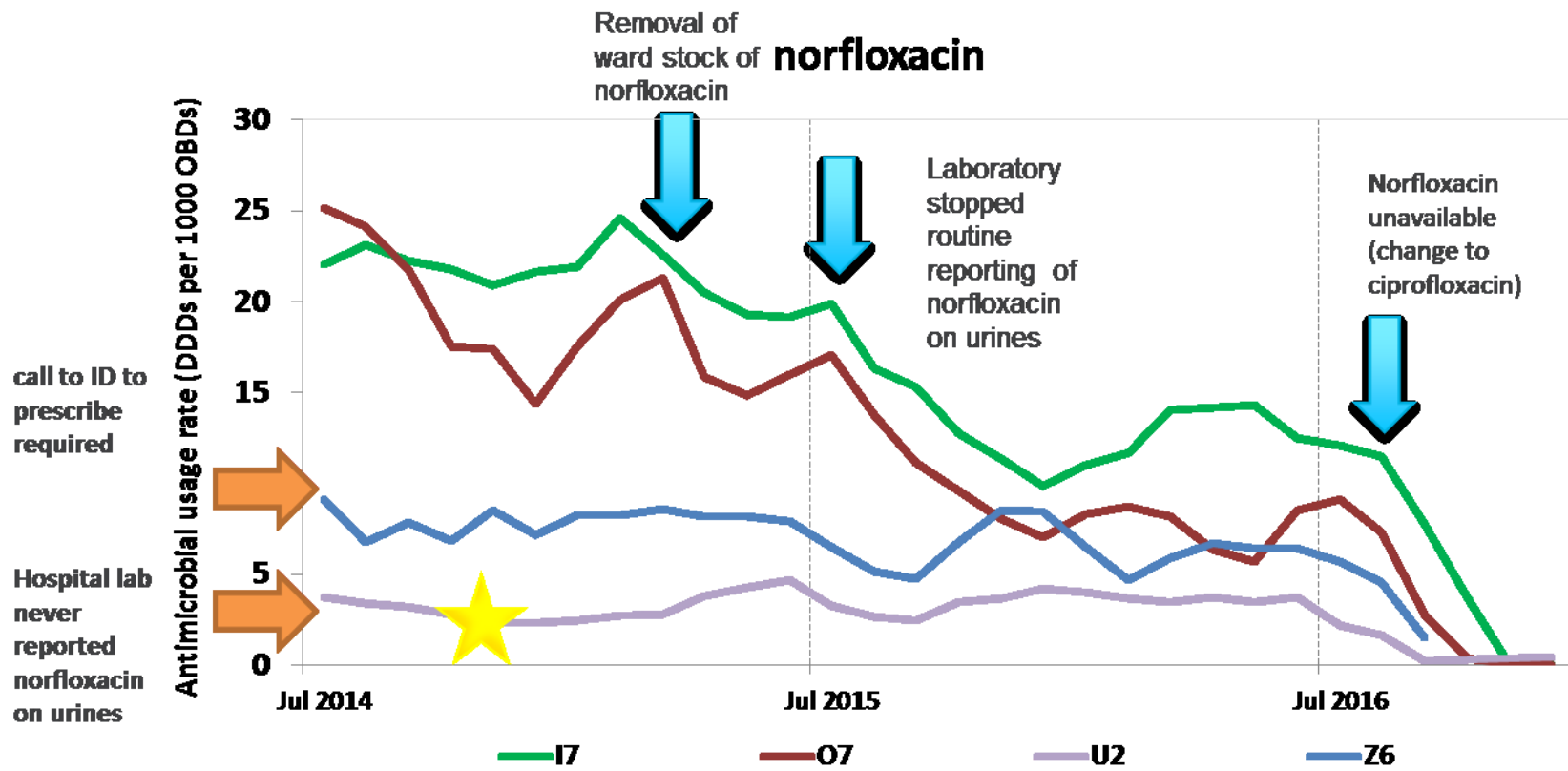
NAUSP data to evaluate effect of interventions on antimicrobial usage



- No new pharmacist/ID physician intervention
- Same restriction policies

NAUSP data to evaluate effect of interventions on antimicrobial usage

Influence of selective reporting



- restricted use to UTI where demonstrated resistance/allergy to other agents
- prophylaxis for high risk haematology patients (hospital I7)

Source: NAUSP, SA Pathology

Evaluating appropriateness of prescribing using NAPS

- NAPS point prevalence audit data from 2014
 - Norfloxacin
 - 3 of 4 (75%) of norfloxacin prescriptions inappropriate
 - indicated need for a more detailed antibiotic-specific audit over a longer period to determine the extent of the problem
 - 15 of 27 (55.6%) norfloxacin courses inappropriately prescribed over 2 month period
 - Action → ward stock of norfloxacin removed, education sessions
 - Demonstrates how NAUSP data can identify variation in usage, show the effects of an intervention, but need local knowledge and other tools such as NAPS to determine indications and appropriateness
 - Despite guidelines and antimicrobial restrictions being in place, the more effective interventions were structural
 - Implications on how we can best produce changes in prescribing
 - make it easy to do the right thing

National Antimicrobial prescribing survey (NAPS)



SURGICAL NAPS National Antimicrobial Prescribing Survey



| Patient identification Number | Date of birth / age | Gender | Date of admission | Date of discharge | Specialty | Height cm | Weight kg | eGFR / CrCl ml/min |
|-------------------------------|---------------------|-----------|-------------------|-------------------|-----------|-----------|-----------|--------------------|
| / / | / / | M / F / O | / / | / / | | | | |

Surgical details

Surgery date / / Surgery this admission Initial subsequent

Procedures emergency elective not assessable

trauma removal/insertion of prosthetic material excessive blood loss

Surgeon code _____ Anaesthetist code _____

Time of first incision : not documented not applicable
If not documented or not applicable; surgery start time (or estimated) :

End time (or estimated) :

Wound classification

clean clean-contaminated contaminated dirty unknown not applicable

ASA score 1 2 3 4 5 6 unknown

Risk factors none identified

All procedures

- current smoker
- diabetes
- peritoneal or haemodialysis
- obesity (BMI>30)
- pregnancy
- rheumatoid arthritis
- current malignancy
- previous radiation therapy
- immunocompromised
- systemic corticosteroids
- other immunosuppressive treatments
- presence of prostheses
- MRSA colonisation
- MDR Gram negative colonisation
- one or more of:
 - prosthetic cardiac valve
 - previous infective endocarditis
 - congenital heart disease with defects
 - rheumatic heart disease in Aboriginal/Torres Strait Islanders

Transrectal prostatic biopsy

- quinolone therapy in preceding 3 months
- recent travel to Asia or Southern Europe in preceding 6 months

Gastroduodenal or oesophageal procedures

- reduced gastric acidity or motility
- gastrointestinal bleeding
- gastric outlet obstruction
- perforation

Biliary surgery

- acute cholecystitis
- obstructive jaundice
- common bile duct stones
- non-functioning gallbladder

Allergies and adverse drug reactions to antimicrobials

nil known not documented present; specify drug and nature

Existing antimicrobial therapy

Any antimicrobial for treatment or medical prophylaxis or another condition. Prescribed in the 24 hours prior (72 hours if on dialysis) to the procedure

none prescribed not assessable

| Antimicrobial | Route | Dose | Date and time of last dose |
|---------------|-------|------|----------------------------|
| | | | / / : : |
| | | | / / : : |
| | | | / / : : |

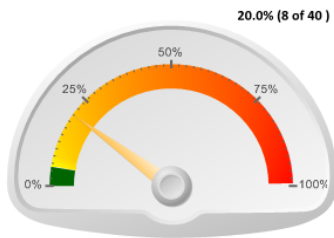
Surgical or clinical notes, microbiology, radiology

Doc:SurgicalNAPS-DCFv7;20160413

- Surgical antimicrobial prophylaxis is an area where the majority of inappropriate prescribing occurs
- sNAPS allows tailored audits for specific conditions
- Identifies multiple factors that can lead to poor prescribing (timing, dose duration)

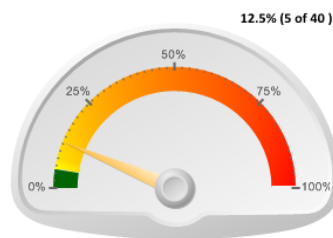
Total number of surgical episodes: 40

Surgical Prophylaxis > 24 hours



The percentage of surgical episodes where surgical prophylaxis was known to be given for greater than 24 hours. For best practice this should ideally be less than 5% (green section)

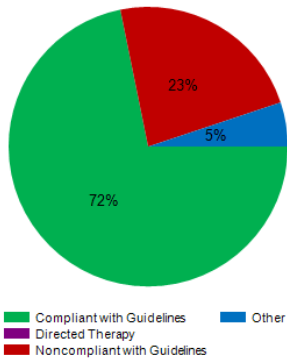
Incorrect timing of peri-operative prophylaxis



The percentage of surgical episodes where the peri-operative antimicrobials were not administered at the appropriate time prior to the first incision

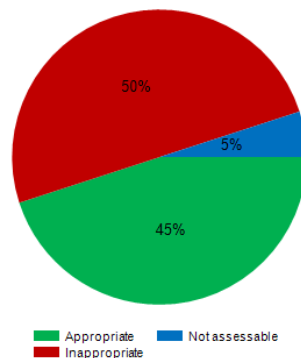
Overall compliance with guidelines (per surgical episode)

Note: These graphs exclude all surgical episodes where the post-operative antimicrobials were prescribed only for treatment of an infection, or deemed not assessable.



Appropriateness (per surgical episode)

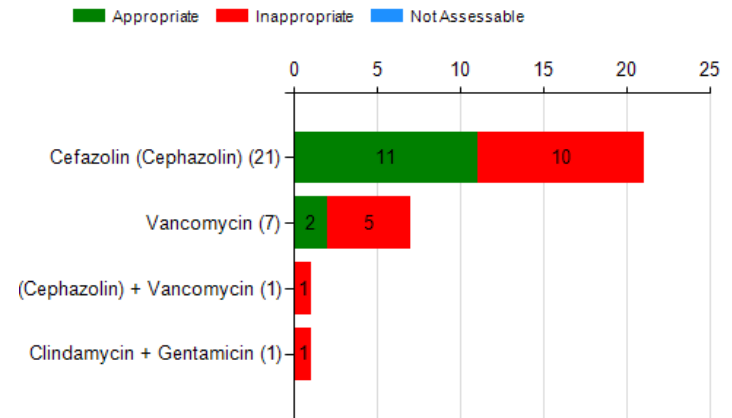
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Top surgical episodes where timing of peri-operative prophylaxis was incorrect

| | Number Of Episodes |
|---|--------------------|
| Total joint replacement – hips primary (THJR, THR) | 3 |
| Total joint replacement – knees primary (TKJR, TKR) | 1 |
| Open reduction internal fixation (ORIF) - Neck of femur (NOF) | 1 |
| Total surgical episodes with incorrect timing | 5 |

Most common perioperative antimicrobial combinations (per surgical episode)



Future directions

AURA data excellent base on which ongoing nationally coordinated AMS actions can be built

- Need more evidence based guidelines for antimicrobial use in all settings
- Further development of electronic audit tools-nationally standardised and supported, easy to use
- Enhanced data analysis to evaluate efficacy and outcomes of AMS activities
- Expanding national standards for AMS to ensure AMS functionality when implementing electronic health records as part of the tender process
 - tracking antimicrobial usage, indication, duration of therapy and also associated pathology data plus decision support
- Research
 - Evaluate variations in prescribing, strategies to improve prescriber knowledge and behaviour, and enhance AMS implementation
- Improved communication and education of the public about the appropriate use of antibiotics